On Opius ferrugineus Gahan and Two Closely Similar New Species (Hymenoptera: Braconidae)

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Opius ferrugineus Gahan has long been known as a parasite of the cherry fruit fly of the eastern states, *Rhagoletis cingulata cingulata* (Loew). More recently specimens of an *Opius* have been reared abundantly from the western race of the cherry fruit fly, *R. c. indifferens* Curran, which were at first identified as *ferrugineus* and later as a new subspecies of *ferrugineus*. Now, after further study of more material, it seems to me that this western form is best treated as a distinct species. Although exceedingly like *ferrugineus* it exhibits certain rather constant differences and, furthermore, it seems to breed only parthenogenetically whereas *ferrugineus* is a normal bisexual species. A second eastern species, which parasitizes the apple maggot and the blueberry maggot, *Rhagoletis pomonellae* (Walsh), has also been identified as *Opius ferrugineus* in the past but is likewise distinguishable. The three species may be identified by means of the following key.

1. First tergite smooth before posterior margin, the median longitudinal embossed area flattening out on apical third where the delimiting keels disappear; antennae 33- to 38-segmented, usually 34- to 36-segmented. Apparently breeding only parthenogenetically, no males having been reared. Western U. S. ..... *muliebris,* new species

   First tergite rugose apically, especially on the median longitudinal embossed area, which does not flatten out on apical third but is distinct to apex of tergite, its delimiting keels complete or virtually so; antennae 34- to 47-segmented, usually with at least 38 segments. Bisexual species. Eastern U. S. .....2.

2. Antennae usually 38- to 42-segmented; metapleuron smooth and polished on anterior half; ovipositor sheath definitely shorter than the body ..... *ferrugineus* Gahan

   Antennae usually 43- to 47-segmented; metapleuron entirely rugulose; ovipositor sheath fully as long as head, thorax and abdomen combined ..... *allocus,* new species

Opius muliebris, new species

Distinguished from *ferrugineus* and *alloeus* as shown in the foregoing key.

Female.—Length about 3 mm. Head about as broad as thorax; face twice as broad as long, smooth and shining, with only a few faint punctures laterally; clypeus polished, impunctate; a large transverse opening between clypeus and mandibles; malar space shorter than basal width of mandible; temples receding slightly; antennae 33- to 38-segmented.

Mesoscutum smooth and polished and with a median dimple-like impression posteriorly; notaulices sharply impressed anteriorly but vanishing before middle of scutum, smooth; prescutellar sulcus usually composed of four large foveae, which are, however, further divided in some specimens; scutellum polished; propodeum regulose; mesopleuron smooth, with a longitudinal foveolate furrow; metapleuron smooth basally, rugulose apically; second abscissa of radius and first intercubitus subequal; recurrent vein entering second cubital; postnervellus weak but distinct.

Abdomen in widest part as broad as thorax; first tergite with a deep basal impression which is bordered on each side by a prominent keel, these keels extending caudad but becoming gradually weaker and vanishing at apical third of tergite; the embossed area between the keels irregularly punctate behind the basal impression but flattening out and smooth on apical third of the tergite; second and following tergites smooth and polished; ovipositor sheath about as long as abdomen and propodeum combined.

Honey yellow; stemmaticum black; antenna black, scape testaceous at base and below; wings hyaline, stigma and veins brown; legs concolorous with body; apical segment of each fore and middle tarsus, the hind tibiae more or less, and the hind tarsi entirely, fuscous to blackish.

Male.—Unknown; apparently non-existent.

Type.—U. S. National Museum No. 63134.

Type-locality.—Ten miles north of White Salmon, WASHINGTON.

Described from 112 females reared from *Rhagoletis c. indifferens* Curran in July and August 1954, by Kenneth E. Frick. Other specimens, totaling 147 females, have been examined in connection with this study. These include other series reared from *R. c. indifferens* in Washington and Oregon, some specimens from *Rhagoletis* on *Prunus emarginata,* Placer Co., California, and others labeled "from wild cherry fruit fly pupae, Belknap Spgs., Ore."

Opius ferrugineus Gahan

Opius ferrugineau Gahan, 1915. Proc. U. S. Nat. Mus. 49: 69, 75.

The holotype, an unusually small specimen, has the antennae 34-segmented and the allotype has them 39-segmented. In the remaining specimens with complete antennae that are in the National Museum collection the number of segments in the antennae ranges from 37 to 40 for females and from 39 to 43 for males. The ovipositor sheath is definitely shorter than that of *alloeus,* and about as long as, or indistinctly longer than, that of *muliebris.* The embossed area on the first tergite is sculptured to the apex though not so coarsely as in *alloeus,* and the keels bounding it are not nearly so prominent on the apical third. The metapleuron is sculptured like that of *muliebris.*

Opius alloeus, new species

Distinguished from *muliebris* especially by its longer antennae and by having the median longitudinal embossed area on first tergite strongly sculptured and sharply defined to the apex, and from *ferrugineus* as mentioned under that species.

Female.—Length about 4 mm. Face twice as broad as long, weakly but distinctly punctate, more completely so than in *muliebris;* clypeus with some punctures; a large transverse opening between clypeus and mandibles; temples receding slightly; malar space a little shorter than basal width of mandible; antennae 44- to 47-segmented in the available specimens.

Mesoscutum smooth and polished and with a median dimple-like impression posteriorly; notaulices sharply impressed, broad and foveolate in front, extending nearly to middle of scutum; prescutellar sulcus broad and deep, with four large foveae which are sometimes divided further; scutellum polished; propodeum completely coarsely rugose reticulate; mesopleuron smooth but with a coarsely foveolate longitudinal furrow; metapleuron finely rugulose; second abscissa of radius usually slightly longer than first intercubitus; recurrent vein entering second cubital cell at base; postnervellus distinct.

Abdomen in widest part about as wide as thorax; first tergite broadly excavated at base, the impression margined laterally by prominent keels that converge to the middle of the tergite and then continue strong and nearly parallel to posterior margin; the median longitudinal embossed area, which begins behind the basal impression and is bounded by the two strong keels, longitudinally rugulose to apex; second and following tergites smooth and polished; ovipositor sheath at least as long as head, thorax and abdomen combined.

Honey-yellow; stemmaticum black; antennae black with scape largely or entirely testaceous; wings hyaline, stigma and veins brown; legs concolorous with body, but the hind tibiae apically and the hind tarsi usually somewhat infuscated.

Male.—Essentially like the female. The antennae of the available specimens are 43- to 47-segmented.

Type.—U. S. National Museum No. 63135.

Type-locality.—Orono, Maine.

Described from 4 females and 2 males reared from *Rhagoletis pomonella* (Walsh) at Orono, Maine, August 12, 1933; 3 females and one male from *R. pomonella,* Red Hook, N. Y., July 28, 1930, and 3 females and 6 males from the same host, reared at Wallingford, Conn. in 1922 by B. A. Porter. There are additional specimens in the National Museum labeled as having been reared from *Rhagoletis* at Jasper, Ascot and Tampa, Florida.